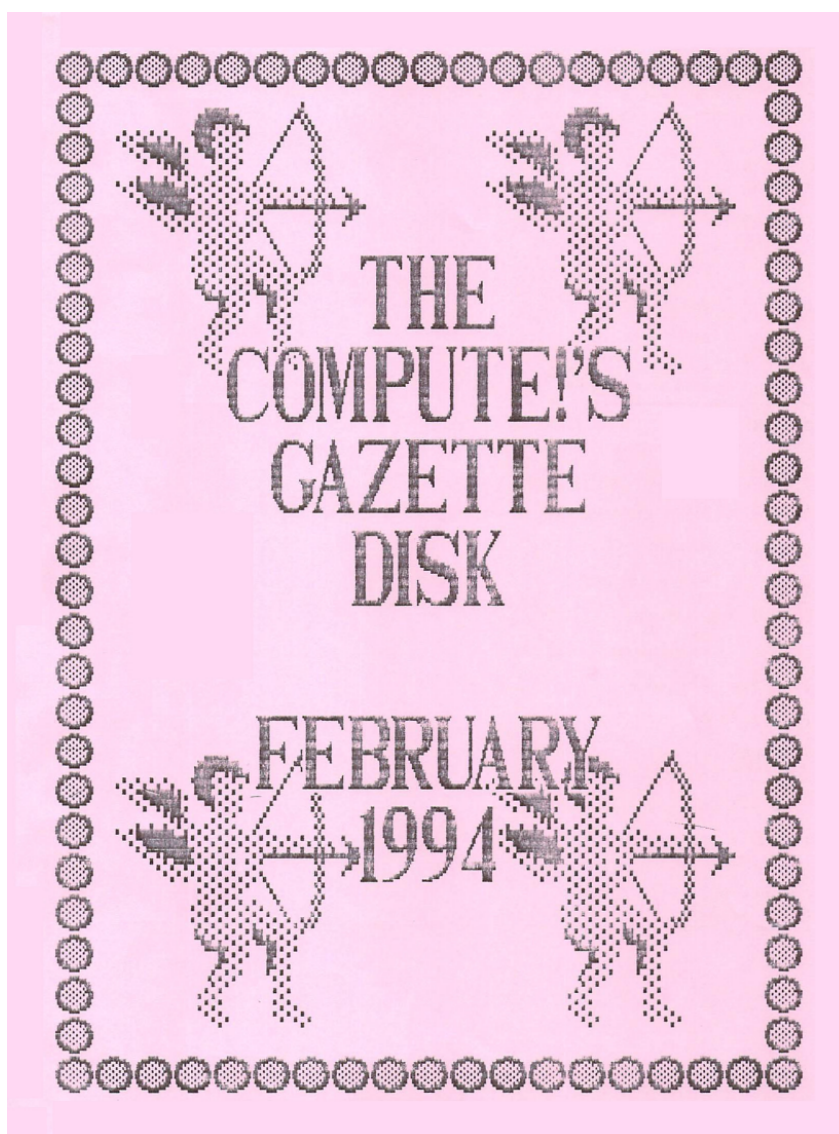


Transcribed from the Disk Magazine

COMPUTE!'s GAZETTE

February 1994
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FOR **COMMODORE** PERSONAL COMPUTER USERS



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GAZETTE DISK MASTHEAD

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(The Gazette Disk masthead doesn't appear until Disk Issue No. 05, but including it here seems like the best way to give proper credit to those who deserve it. —MS)

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64/128 VIEW

Tom Netsel

Bad economic news from Commodore, but the 8-bit community looks after itself.

Uh oh. It looks like we won't be getting much support from Commodore anytime soon. Of course, now that I think about it, when was the last time the 8-bit crowd got any support from West Chester?

By the time you read this, I wonder if Commodore itself will even be around. As I write this in the autumn of 1993, Commodore has just reported a \$359 million loss for the financial year that ended June 30, 1993. The company had been quiet for months about its financial situation.

"The company's financial position and operating results raise substantial doubts about the company's ability to continue as a going concern," according to the report that was two months overdue.

The report, attributed to Commodore chairman Irving Gould, said, "We have made progress in reducing the net loss. Having largely completed our operational restructuring, we are now planning to undertake a restructuring of our debts to allow the company to continue normal operations."

The company has been trying to work out new credit terms with suppliers that had restricted the company's credit and instituted legal action. There was no assurance such arrangements could be made.

A company controlled by Gould lent Commodore \$17 million in February and April and was subsequently repaid \$9.5 million, raised from the sale of Commodore inventory. Part of that inventory went to The Grapevine Group.

If you are looking for Commodore and Amiga hardware, you might want to check with Grapevine. According to a press release sent by Grapevine president Joel Kornreich, his company "has acquired half a million pounds of new and refurbished Commodore and Amiga equipment. This includes the remaining inventory in the 8-bit arena."

If you need a 64, 128, A500, 1084S monitor, floppy drive, or power supply, you might want to give The Grapevine Group a call (3 Chestnut Street, Suffern, New York, New York 10901; 914-357-2424, 800-292-7445).

Last month, we had a review of *Elementary Math Skills* and *SAT Mathematics*, two educational programs from Microphys Programs (12 Bridal Way, Sparta, New Jersey 07871; 201-726-9301).

Microphys may be a name new to many of you, but the company has been around for a long time. It developed a large amount of educational software for the 64 and 128. Demand for this type of Commodore software dropped a few years back, and Microphys seemed to slip away as have many other Commodore software developers.

A few months back I was trying to find a program for a reader, and I came across the Microphys name. The number of titles it had produced was astounding. I tracked down the company through a couple of address changes and found that it was still in business and still had a number of Commodore titles available.

As I said, most of them are educational in nature, and many are math- and science-related. *Elementary Math Skills*, *Junior High Math*, and *Senior High Math* are series that teach addition, division, decimals, proportion, fractions, and other mathematical concepts.

Anagrams, *Cryptograms*, and a *Verbal Analogies* series helped students with verbal skills and SAT exams. Each subject had numerous programs for teaching different age and development levels.

If you are looking for good educational software for the 64, you might want to write for a Microphys catalogue. A good number of titles are still available, including the two that we reviewed last month.

Finding hardware and software for the 64 and 128 is becoming more difficult. Companies such as The Grapevine Group and Creative Micro Designs have done a good job in gathering inventories from a number of sources. Between these two firms, you can find a wide variety of Commodore products.

In December 1992, *Gazette* published a buyer's guide of companies that still carried the Commodore line or offered services for Commodore 8-bit owners. That article was so well received that we've decided to update it. It's in the final stages of editing. Look for it in next month's *Gazette Disk*.

In compiling such a list, we almost inevitably omit a valid company. Many local computer stores may offer Commodore software and repair, and it's almost impossible to locate all of these. So if you readers are familiar with a store in your area or notice a source that isn't included on our list, please let me know, and we'll publish an update later in the year.

Most of us stopped counting on support from Commodore years ago, but help, information, services, and products are still available. The 64 and 128 users are a dedicated lot. Even without Commodore's help, through user groups, newsletters, publications, and telecommunications, they'll stick together for many years to come.

Finally, 64 users may notice that we have fewer than normal programs on this disk. That's because we have a 128 program called *Starship Battles* that fills most of one disk side. This is one of the larger programs that I spoke about in an earlier editorial about the new disk format. This space adventure is so large and contains so many extra files that it would have been impossible to use it in the old *Gazette*.

I know many of you say that you don't like games, but I hope you'll give *Starship Battles* a try. Be assured that I'll be on the lookout for large utilities and productivity programs for you non-gamers!

Feedback

Comments, letters, and questions from our readers.

Bug-Swatter

Several readers pointed out errors on the January *Gazette Disk*. The “PD Picks” column would not load from the menu. The menu program, MENU.COLUMN, has a typo in line 760 that calls the wrong program. The correct spelling should be PD PICKS. Since the disk is write-protected, you’ll have to make a temporary change unless you know how to notch a disk in order to write to it.

We had a similar problem with MAT/SAT review. The file name in line 810 should be MATH/SAT.RV. Of course, we moved the reviews to the Feature menu, but neglected to delete the incorrect version from the Column menu.

There was also a problem with some advertisements not returning to the menu. This forced readers to reboot the program. We trust any ill will that this may have created was directed at *Gazette* and not at the advertiser. We believe this problem has been corrected.

Richard Young of Manassas, Virginia, pointed out that the Feedback programs in the article are listed as FALL LETTERS1, 2, and 3, while the actual filenames are FALL LETTERS1.FB, FALL LETTERS2.FB, and FALL LETTERS3.FB. The FB suffix stands for “Feedback.”

We regret any inconvenience that these problems may have caused our readers.

More Files on Disk

I have a collection of several thousand *Print Shop* graphics, with 75-100 images on each disk. At three blocks per image, there’s plenty of disk space left. I’ve tried to put more images on each side of a disk, but the copy process stops at 144 files. Any attempt to add more proved futile. Is there any way to get more than 144 filenames in a directory?

JEFF PETERSON
BIG RAPIDS, MI

You didn’t specify the type of drive you have, so we’ll assume it’s a 1541. A 1541 disk has 644 free blocks available, but its directory is limited to 144 entries. Saving 144 three-block graphic files would leave 432 blocks of wasted space.

Since you can’t put more files on the disk, how about putting more data into each file? You can do this with a utility that links a number of small files to create one larger file. Such a file is often called an archive file. Archiving is a popular means of sending files over a telephone line to and from a BBS.

Lynx is one such popular file-linking utility. *Gazette* published a similar program called *Noah’s Arc* in July 1991. It was followed by a companion program called *Noah’s Reader* in November 1992. Similar public domain or shareware programs are probably available at your user group or on a local BBS. (These *Gazette Disks* are still available from our Greensboro office.)

One problem with archived files is that unless you have the filenames written down, you have no way of knowing the contents of the archived file. Some utilities such as *Noah's Reader* will let you read the contents of an archived file and then list the names of the graphics or programs stored within that file. You might want to group similar graphics and store them with an identifying filename.

Long Printouts

Whenever I print out a *Print Shop* document on my 24-pin Panasonic KX-1624, the image is elongated. I never had this problem with my old 9-pin printer. Do I need a special printer driver or something to make the printouts look normal?

JAMES H. SMITH
EVERETT, WA

The problem stems from the fact that The Print Shop and many older Commodore graphic programs were designed for use with 9-pin printers. The extra pins in the 24-pin and ink-jet printers make each line of these graphics print a little longer, changing what's called the aspect ratio.

Some programs may have a setup or installation process that will let you select a driver for your new printer, but that's not the case with many earlier programs.

What you'll have to do is take your printer out of 24-pin mode and put it into 8-pin emulation mode. Your Panasonic has six different 8-pin bit image modes in Epson emulation and four 8-pin modes in IBM emulation. You can set your printer to any of these by entering the initial setup mode as explained in your printer manual. You may have to try different modes to see which works best with your particular graphics program. This process varies from printer to printer, and you may have to experiment by selecting Epson or IBM emulation modes.

Recipe Transfer

I have a large collection of recipes that were written on my 64 in PETSCII format. My son just presented me with an IBM that I am trying to learn how to handle. I would like to transfer all of my recipes to the IBM without typing them all over again.

I have two phone lines in my computer room, one running to the 64 and the other to the IBM. They each have modems, and each computer has a terminal program. Can you give me step-by-step instructions for the whole process of transferring my recipe files from the 64 to the IBM?

CHARLES MCCULLAR
SAN FRANCISCO, CA

We have covered this several times in Gazette, but since the IBMs don't seem to be fading away, one more time might help you and other readers who have a 64/128 and an IBM or compatible.

The first thing to do is convert your PETSCII files to ASCII. If you don't, what was lowercase in the Commodore files will appear in uppercase on the IBM, and the uppercase letters may be indecipherable. Check with the word processor that you used to create your recipes. Many word processors, SpeedScript included, have the option of saving files as true ASCII.

Rather than loading your files back into your word processor and saving them again in ASCII format, you may have a PETSCII-to-ASCII file conversion program on hand that will do the job for you. Many of these utilities are in the public domain.

Once you have converted your files, load and run both terminal programs. Make sure that they both are set for the same modem speed, parity, and so on. From one terminal, place a call to the other, just as you would call a BBS. Have the answering terminal set to auto-answer or else type ATA from terminal mode when the call arrives. After you've made contact, you might want to type a few words to make sure that everything is in order. If you see only garbage on the screen, check your modem speed and terminal settings.

If all is well, you can begin to transfer the files. Decide on the protocol that you plan to use—XMODEM, for example—and then upload the files from your 64. At your IBM, download the files using the same transfer protocol. Your recipes or any other ASCII file should then be ready to call up on your IBM.

For those of you who don't have a separate telephone line at each computer, you can still transfer files from your 64 to IBM. One way is to hook up your 64 to the phone line and send the files to an outside BBS. Disconnect the phone from the 64 and connect it to the IBM. Use the IBM to call the BBS and download the files that you just sent.

Of course, some BBSs don't let you download files that have just been uploaded. You may be able to work something out with the sysop.

Another way to make the transfer with one telephone line is to purchase a telephone jack Y-adaptor. This is a small device that lets you plug two telephone lines into one telephone wall socket. Plug both the 64's and the IBM's modem lines into the adaptor and then plug the unit into the wall. Now have one computer call and have the other answer. You don't even have to use a real telephone number since the two computers are simply sharing the same line. You may hear what you think is a busy signal coming from the calling modem, but type ATA to answer on the other computer. Once they have connected, upload from one and download from the other.

803 PRINTER RIBBONS

I am having trouble finding ribbons for my Commodore 803 printer. Can you suggest a supplier or an equivalent?

RONALD BULMER
HAUPPAUGE, NY

You can get that ribbon from a number of mail-order ribbon suppliers. You can find it at Ramco Computer Supplies, (800) 522-6922. Call for prices. You can also get it from Carolina Ribbons, 902 Norwalk Street, Greensboro, North Carolina 27407. At Carolina Ribbons, the price is \$6.00 with \$3.00 shipping and handling. You might want to order several to save on shipping costs. The Brother 9010 is an equivalent ribbon that you might find at a local office supply store.

64 TO VCR

Can a monitor cable be used to send the output of my 64 to a VCR?

REGGIE MATHIS
LANCASTER, SC

Yes, you can connect your 64 to a VCR. The 64 contains a small radio frequency modulator that translates its digital signal to an analog signal that a TV or VCR can use. You can also record whatever appears on your monitor screen on videotape.

You can also use your monitor with your VCR. There should be jacks on the back of your VCR labeled Audio Out and Video Out. These two outputs can be directed to the video and audio jacks on the front of your monitor. Just make sure that the switch on the back is set to the front connections. You would need a cable that has two RCA plugs on each end. You can find these at most video or electronic stores. You might notice that the TV picture on your monitor is actually sharper than what you'd see on a television.

You can't send a TV picture to your 64, however, unless you use a special interface called a digitizer to convert the TV's analog signal to the digital 1s and 0s used by the computer.

HORIZONTAL SCROLLING

I typed in Vertiscroll by Daniel English and found it easy to use. Is there a similar program for horizontal scrolling? This would make a good lead-in for home videos.

L.G. THORNE
DARTMOUTH, NS
CANADA

We published a program called Mutate (April 1993) that might be what you are looking for. This program was rather large, so we offered it as a bonus on Gazette Disk for that month. You can use Mutate to select different fonts and video effects such as blanks, scrolls, and wipes to produce professional-looking home videos with a little help from your 64. The April 1993 Gazette Disk is still available for \$9.95 plus \$2.00 shipping and handling. Send check or money order to Gazette Disk, COMPUTE, 324 West Wendover Avenue, Suite 200, Greensboro, North Carolina 27408. You may order it by credit card by calling (910) 275-9809.

If you have a question, comment, or suggestion, send it to:

"Feedback"
COMPUTE's Gazette
324 West Wendover Avenue, Suite 200
Greensboro, NC 27408

Be sure to date your letter and include your name and address.

GEOS

Steve Vander Ark

Customize Your Directory

Last month I headed down from the GEOS bridge (figuratively speaking, of course) and made my way into engineering, leaving behind all the glitzy, exciting, fire-the-phasers stuff like *geoPublish* and GIFs. I spent my monthly ration of 1000 words talking about keeping the "engines" running smoothly—organizing disks, planning ahead for crashes, and what not.

This month I'm still down in the bowels of GEOS, schlepping around with the twenty-fourth-century equivalent of a monkey wrench, doing a little more fine-tuning before engaging warp drive and heading out for the next big adventure. This month I'll tackle one of those

frustrating problems that keep me from enjoying Gateway to the hilt. It's time to organize my directory.

Now if you don't use *Gateway*, you're probably wondering, "What's the big deal?" After all, under *deskTop* you can whip those little icons around like so many poker chips, dropping them onto whichever page suits your fancy. But with *Gateway*, you're working with a list of filenames, whose order is pretty much impossible to change.

Well, that's not entirely true. You can pick up a filename by its little mini-icon and drop it onto some other filename to make them trade places. With some deft mouse handling and a good half hour or so, you can tweak things into some semblance of order. And, hey, the most likely reasons for you to rearrange a directory would be either to put fonts in order so the first seven suit your Write/Publish/Paint needs or to arrange data files so the ones you need most often are among the first 15 on the disk. You can make this kind of a chore easier by using the View menu to list only those particular types of files in your directory and then swapping filenames back and forth on the shorter list.

I like things just so. I like to have all my fonts together and to have *geoWrite* and all its little utilities tucked in together. That's just the way I am.

OK, so I'm persnickety, but I find *Gateway* much more efficient if I have my favorite applications visible every time I drop back to the *Gateway* screen. And on my RAMLink, even shortened directories of, say, only my fonts are still pretty darned big.

The easiest way to rearrange your directory is to use the *deskTop*. Just boot up with your old boot disk and move things to where you like them. When you go back to *Gateway*, you'll be all set. But this solution doesn't work for RAMLink native mode partitions, and those whopping big native mode directories are the ones that need organizing the most!

The first place I turned for help was to an excellent program called *geoOrganizer*. This program, written by William Coleman of *geoTerm* fame, was included on the first disk of GEOS programs RUN magazine put out way back when. You can still get a copy of this disk, called *GEOS PowerPack 1*, through Creative Micro Designs.

I've always liked *geoOrganizer*; it has a nice, easy-to-use interface that lets me manhandle files to my heart's content. But *geoOrganizer* gets stumped when confronted with a RAM drive. When I tried to use it on a 1581 partition, it was convinced I had somehow managed to write-protect my RAM disk! Oh well. It does sport a very nice bell sound to go along with its error dialog box.

There are always wonderful shareware/public domain libraries on QuantumLink, so I fired up my Q-Link software and started poking around. It didn't take me long to find something called *DirMaster*, uploaded by KentLS. Kent is one of the most talented of the GEOS programmers, so I figured this program would certainly be a winner—and it is. Not only does *DirMaster* allow me to sort my directory or any selected portion of it by filename or file type, but it also lets me pick up a file and drop it neatly into any spot in the directory.

With *DirMaster* it wasn't long before I had my native mode partition all sorted into fonts, games, applications, and so on. Then I selected each group of a specific type and sorted that

group alphabetically by filename! It seemed almost too good to be true, but when I dropped back out into Gateway, the directory was perfect! Look for *DirMaster* on this disk.

Before I head back up to the bridge, there is one more bit of GEOS engineering to talk about. This might be considered damage control, since I'm talking about validating damaged disks. There is a program that should be required for every GEOS user. It's called *Super Validate*, and it's a marvel. If you subscribed to *RUN* magazine's disks back when there was such a thing as *RUN* magazine, you may already have a copy of *Super Validate*. If not, you can order it from Creative Micro Designs. Ask for *RUN*'s March/April 1992 issue.

What makes *Super Validate* so spectacular is that it lets you look in on the validation process as it goes. You can watch the names of your files slip past as the program does its work, thereby assuring yourself that each one is still intact and properly linked on your disk. If, however, a file does turn out to be corrupted, this wonderful program tells you so. It doesn't simply offer some meaningless error code but provides the actual filename of the offending file. *Super Validate* informs you which file is causing the problems and then stops the validation process so you can slip back out to the *deskTop* to wipe the nasty bit of trash away. You can then go back into *Super Validate*, check for any more bad files, and rest assured that your disk is back up to GEOS's high standards.

Well, so much for this trip down into engineering. There are plenty of other chores every GEOS user has to do to keep things rolling smoothly. I suppose I should be planning another few columns to show you some nifty ways to do them, but for now, I want to get back to the bridge and put this baby through its paces again. I think I'll fire up *geoPaint* and play with the new *VideoByte* program for GEOS!

Machine Language

Jim Butterfield

The List You See

Let's take a look at some of the ways that machine language instructions are listed.

There are so many ways of publishing a machine language program that readers often get confused. Another thing that baffles a beginner is to load a program, type LIST, and see only a single line such as SYS(2059). In this column I'll try to go through various listing methods.

Hex Dump

I'll show mostly the same program, displayed in a variety of ways. It's a tiny one that simply prints the word HELLO. Here's one way it could be shown.

```
>2000  A2 00 BD 0E 20 20 D2 FF
>2008  E8 E0 06 D0 F5 60 48 45
>2010  4C 4C 4F 0D 00 00 00 00
```

This is called a hex dump. Hex is short for hexadecimal. This display shows the program as it exists in memory, ready to go. It's the most efficient way of displaying a program. Each line

begins with the address of the first byte in this group and is followed by 8 (sometimes 16) bytes of data to be placed into memory.

To enter a hex-dumped program into your computer, you need a special program that's called a machine language monitor. Such a program allows you to enter hexadecimal values directly into memory. It can perform other functions, too, such as displaying the contents of memory. I'll touch on some of these other uses later.

If you see a display similar to the one above, but with nine bytes of data instead of eight, you're looking at an error-checking display. For example, the Gazette machine language type-in listings used the MLX scheme: eight bytes of data, plus an extra byte that served as a checksum to guard against typing errors. If you had the checksum, you could enter this program with MLX.

BASIC Poking

The following type of listing asks BASIC to poke the machine language program into memory.

```
100 DATA 162,0,189,14,32,32,210,255
110 DATA 232,224,6,208,245,96
120 DATA 72,69,76,76,79,13
200 FOR J=8192 TO 8211
210 READ X:T=T+X
220 POKE J,X
230 NEXT J
240 IF T<>2290 THEN STOP
300 SYS 8192
```

If you understand a bit of hexadecimal versus decimal, you'll see that the values in lines 100 to 120 above are exactly the same as those shown in the hex-dump listing. It's just that the figures this time are in decimal instead of hexadecimal.

This kind of BASIC program is self-contained. Type it in, type RUN, and it runs. I often include sample programs in this format since everyone's computer has BASIC installed.

Disassembly Listing

Programs shown in the following form are produced by a disassembler. The user will have switched into a machine language monitor and commanded something like "D \$2000".

Each line shows a machine language instruction. It has three main parts. The first number is the address of the instruction and that is followed by the bytes of machine language. Finally, the same information is listed in a more readable mnemonic code. All numeric values are in hexadecimal.

On the first line you can see an instruction at address hex 2000. That instruction consists of two bytes, A2 and 00. Those bytes mean "Load X (LDX) with a value (#) of hexadecimal (\$) 00."

```

. 2000 A2 00 LDX #$00
. 2002 BD 0E 20 LDA $200E,X
. 2005 20 D2 FF JSR $FFD2
. 2008 E8 INX
. 2009 E0 06 CPX #$06
. 200B D0 F5 BNE $2002
. 200D 60 RTS
. 200E 48 45 4C 4C 4F 0D 00 00 :HELLO...

```

Notice that the information following each line number is identical to that shown above in the hex dump. The mnemonics that follow the hex numbers make the program much more readable. The last line of the above listing is data, not an instruction. It must be shown in hex-dump format.

You can enter this program into your computer with a machine language monitor. Start the line with command A for Assemble and omit the hex data values. For the first line, you would type the following line.

```
A 2000 LDX #$00
```

You might be surprised to see the screen after you press Return.

The SYS Mystery

To look into a program that seems to contain only a single line, such as SYS(2059), you could use a machine language monitor to get a display similar to the one above. Most monitors would accept the command D +2059 to disassemble a listing. In this case, the plus symbol signals a decimal value.

More lines of code can be viewed by simply pressing D.

Assembler Listings

Many programmers use a symbolic assembler. This program lets them give names to parts of their program and the assembler figures out what the addresses are. A listing might look like the following.

```

*= $2000
CHROUT = $FFD2
LDX #0
MYLOOP LDA MESSAGE,X
JSR CHROUT
INX
CPX #6
BNE MYLOOP
RTS
MESSAGE dc.b "HELLO", $0D
END

```

The program's location is started at hex 2000, and following is what's known as the source code. If you're comfortable with disassemble listings, this type of code is quite readable.

If you don't have a symbolic assembler, you can still generate the working code with a little careful arithmetic. This is called hand assembly; it's a little more work.

Macro Assemblers

Finally, you might see a listing that contains macros. In the example below, command XLOOP is not a standard machine instruction. A macro assembler can be instructed to translate special commands (macro instructions) into a set of several standard instructions.

```
    *=$2000
CHR0UT = $FFD2
    LDX #$00
MYLOOP LDA MESSAGE,X
    JSR CHR0UT
    XLOOP #6,MYLOOP
    RTS
MESSAGE DC.B "HELLO", $0D
    END
```

The listing should also supply the macro definitions to explain the special commands.

If you flip the disk over, you'll see my usual BASIC listing that pokes machine language instructions into place. This program is called SAMPLE.ML.

Beginner BASIC

Larry Cotton

Custom Characters, Part 2

This month, we'll learn how to create custom characters that can replace one or more of the standard characters that are already programmed into your 64. In last month's program, for example, we magically transformed the shifted A into a rectangle.

You can redefine a character to anything from an arrow to a Zeon—as long as it can be crammed into the standard 8 x 8 pixel grid that makes up every character in the 64.

First, if you have the *Commodore 64 Programmer's Reference Guide*, turn to page 112. If you're using the *Commodore 128 Programmer's Reference Guide*, look at page 231. The old user's guide for the 64 doesn't cover the subject, nor does the 64C's.

If you don't have any manuals, grab yourself a piece of graph paper. If you don't have any graph paper, run the little program on this disk called Grid.BB. It is a giant representation of a blank character.

Scribble a grid similar to it on your sheet of paper. Each of the 64 squares in this grid represents one pixel (dot) in a character. Number the grid from 1 to 8 down the left side. Across the top start at the left side and number the squares 128, 64, 32, 16, 8, 2, and 1.

Before we draw our custom character, make sure you know the difference between a column and a row in this grid: a column contains eight adjacent vertical squares; a row contains eight adjacent horizontal squares.

Now, on your grid, using a broad-tipped marker, draw a horizontal line right through the middle of row 1 and another through row 8. Now draw vertical lines in columns 128, 64, 2, and 1. You have created a square. (Two lines are drawn for the vertical sides of the square to lessen color distortion in your characters when they are displayed onscreen.)

Your objective now is to create data from the numbers above the grid. Scan each row (remember, a row is horizontal) one at a time, starting with row 1. Whenever any square in a row has a line drawn in it, add up the number(s) at the top of the grid and write down the sum. Since the entire top row is marked through, add $128 + 64 + 32 + 16 + 8 + 4 + 2 + 1$ to get 255. Write that number down somewhere below the grid.

In rows 2 through 7 the two outside squares contain lines. Therefore each of those six rows will yield the same value when the marked columns' number headings are added: $128 + 64 + 2 + 1$ or 195. Put six 195's after the 255, separating each with a comma. Row 8 is a duplicate of row 1, so end your series with a 255. The numbers you've written down should look like the following.

255,195,195,195,195,195,195,255

The *Programmer's Reference Guide* babbles on about binary words and powers of 2. If you can follow that description, number your columns (left to right) 7 to 0 and your rows (top to bottom) 0 to 7. Otherwise, keep it simple and number them the way I've shown above.

Now that you've got your eight numbers, what to do with them? Let's extract a few lines from last month's program so you can test your data.

```
10 V=53248: POKEV+32,15: POKEV+33,12
20 PRINT" [CLR] [BLK]"
30 POKE214,10: PRINT: POKE211,19: PRINT" [SHIFT-A]"
40 FOR T=1 TO 500: NEXT
50 POKE56334,0: POKE1,51
60 FOR I=1280 TO 12815: READD: POKEI,D: NEXT
70 DATA 255,195,195,195,195,195,195,255
80 POKE1,55: POKE56334,1: POKE53272,28
```

This program, *Custom Character*, is on the flip side of this disk. When you run it, watch the spade (the shifted A) do an instant morph into a square (actually, it's more like a rectangle because characters are taller than they are wide).

After running the program, try typing or listing it. You'll see garbage because the computer's getting its characters from RAM instead of ROM, and we didn't copy any of the character ROM to RAM, as we did last month. You can get back to normal by pressing Run/Stop-Restore.

Now create your own enlarged custom character on another numbered grid. Remember to draw in simple, bold lines, so that there's no doubt whether one of the small squares is marked. Then, starting with the top row, add across all the numbers at the top of the columns

that contain a mark. When you finish the entire grid, you should have eight numbers separated by commas. None of the numbers should be larger than 255. If none of the squares are marked, enter a 0.

List *Custom Character*—make sure that you’ve hit Run/Stop-Restore so you can read the program listing—and then put your own data values into line 70. Be sure there are eight numbers separated by commas. Don’t drop the keyword DATA.

Run the program once more and watch the spade change to your own character. Any time you type a shifted A, you should see your new character. If you don’t like your creation, change the data and try again. Remember two things for best results: Always make any vertical lines in your character at least two pixels (squares in the grid) wide and be aware that the resulting character is actually somewhat taller than its width.

In order to use the available character set, you need to copy all (or most) of character ROM to RAM, as we did in last month’s program.

D’Iversions

Fred D’Ignazio

Classrooms without Walls

In a recent issue of *Gazette*, I promised to follow up a critique I made of public schools (in an article titled “Are Schools Ready for Our Children?”) with an article on specific ways classroom teachers could use new technologies to plug today’s classrooms into the outside world.

An Electronic Cul-de-Sac

Newspapers, magazines, and TV news shows are heralding the arrival of global information highways which carry voices, video, and data at near light speeds around the world. Businesses, entertainment companies, and government agencies are racing to build these highways and create content (programming) which can be piped up and down the highways to eager consumers.

It’s time for schools and classrooms to catch up with homes and businesses and construct vehicles students can “ride” onto these electronic highways. In the near future, student teams can travel these highways to explore, conduct research, and interact with other students across the planet.

Unfortunately, most teachers are unaware of the formation of these electronic superhighways. And many of those who are knowledgeable feel that their schools are so strapped for funds that it will be sometime in the next century before their students can ride these highways. As a result, most classrooms will continue to be information *cul-de-sacs*—dead ends and backwaters where information flow is sluggish and slow and where student-published information stagnates.

Mopeds, Scooters, and Skateboards

There is hope, however. In fact, even the most resource-poor classrooms today can become classrooms without walls, where students regularly use their imaginations and modern communications to travel the world—and beyond.

Here are some simple strategies you can follow to get your student researchers and explorers plugged into the outside world:

1. Partner – Local cable companies and telephone companies are wooing new clients to take a ride on their electronic highways. This is a wonderful opportunity for you and your school to create an experimental project which brings in resources, compliments of the high-tech company, for your students to use.

2. Cable in the Classroom – Contact your local cable-TV company and get it to sponsor your classroom as an official cable-in-the-classroom site. In return, you will receive a monthly magazine filled with articles about other classrooms that are linking their students with the rich array of educational materials broadcast each day via cable.

You will also find how to install a cable outlet in your classroom or media center so you can plan lessons and curriculum units around broadcast (or taped) segments. You will get a programming guide so you can plan ahead to videotape the materials (all programs are accompanied by copyright guidelines) or show them to your students as they are broadcast.

You can also set up your classroom with an educational telex program, Xpress*Xchange, which piggybacks on the cable wire and turns your classroom computer into a live AP or UPI machine with hundreds of news articles per day arriving from locations all over the world.

3. Speakerphone – Work with your school administrators and/or PTA and get a phone outlet and a speakerphone installed in your classroom. With a little digging around at your local community college, community businesses and organizations, and so on, you can line up "electronic visitors" who can call your classroom at an appointed time to talk with your students and answer their questions. Many teachers have used this technique to line up well-known authors, artists, scientists, community leaders, and entertainers and to have them visit their classrooms electronically. Teachers have the students prepare for the presentation and then tape-record the visit using a simple audiocassette recorder.

4. MODEM – Once you have a phone installed in your classroom, you can turn it into a data link connected to your classroom computer. Your students can now use your computer to connect to student and educational bulletin boards (such as KidNet) and to national news and information sources such as Prodigy, America Online, and Internet. You have now turned your classroom into a "virtual library" in which students can browse through electronic "stacks" in remote places such as the University of Michigan, the St. Petersburg library, the Smithsonian, and the Library of Congress.

5. FAX – Low-cost fax modems can now be bought for around \$100 for any Apple or IBM-compatible computer, or students might approach their parents or PTA for a donated hand-me-down fax machine. Students can obtain fax numbers through fax directories at the local library. They can do research on a topic and then fax their questions for immediate, realtime responses from national scientific labs, national news agencies, political figures, and so on.

Faxes from students are still so rare that most people (even the rich, powerful, and famous) are answering!

6. Satellite – Bargain discount electronic stores are offering five-foot satellite dishes for only a couple of hundred dollars. Once you have a satellite (and a mounting location, a TV monitor, and a controller box with cables), you can point the satellite to several global public domain satellites and get immediate images, data, and information broadcast right into your classroom. This is a great way to get instant global news reports, satellite weather reports, and so on for use in geography, social studies, science, and communications arts classes.

7. Tape Recorder – Your students can carry a common classroom audiocassette recorder out into your community or even into the halls of your school and collect dramatic “eyewitness” testimony on issues related to the curriculum. High school students can interview other students about AIDS, teen pregnancy, and drunk driving. Middle school students can interview local politicians, hospital surgeons, and insurance company officials about President Clinton’s healthcare program. Elementary school students can visit the town recycling center and local businesses to trace the way pollution enters a community and what is being done to control it.

8. Video Camera – Students can create personalized, eyewitness reports on events in school, at home, and in their community using an older video camera and a tripod (to get that professional touch). Student tapes can be played back to accompany student presentations, edited with other research which students are doing, or sent live into the classroom or media center.

I hope you’ll get excited about some of these ideas and start thinking about possible projects. Classrooms don’t have to be information cul-de-sacs in the modern world. With a little ingenuity, collaboration, and experimentation, students and teachers—and parents!—can create classrooms without walls and do it on a shoestring!

Programmer’s Page

David Pankhurst

Taming the Dreaded INPUT

How to save your program from the hands of an eager but inexperienced user.

You’ve finally finished that great program that processes data supplied by the user. Eagerly, you let a friend who’s not computer literate try it out. The friend then proceeds to erase your screen, enter the input prompt as data, and scroll the cursor past the bottom line of the screen.

Sound familiar? Sooner or later, everyone runs into Commodore’s great goof: the infamous INPUT routine. Not to be too critical, BASIC’s INPUT statement is very powerful and intuitive, but that’s part of the problem. You have all the editing keys available to use, and that’s just too much power. Quality programming requires that you protect the user from affecting anything outside his little input window.

Easy Answer, Tough Problem

The solution to INPUT is simple, but implementing it isn't. What we need to do is limit the power of the editing keys that are available to the user. It's too easy for all that power to get away from the user. The simplest way to program this is to ignore most of the keys. The following program does this, besides having the advantage of being small and easy to enter.

```
49100 REM SIMPLE INPUT
49110 CU$="[space][left]": PRINTX$CU$;:P=0:X$=""
49120 POKE204,0: WAIT198,7: POKE204,1: GETY$:Y=ASC(Y$): IFY=13THEN49170
49130 IFY=20ANDP>0THENP=P-1: PRINTY$CU$;: X$=LEFT$(X$,LEN(X$)-1):
GOTO49120
49140 IFP>=XTHEN49120
49150 IFY<="[space]"OR Y$>"[shift-z]"OR (Y$<="[shift-A]"AND
Y$>"[backspace]") THEN49120
49160 PRINTY$CU$;: X$=X$+Y$: P=P+1: GOTO49120
49170 PRINT"[space]": X=LEN(X$):RETURN
```

(This program, called SIMPLE INPUT.PP, is on the flip side of this disk.)

I recommend using high line numbers here to prevent line conflicts when you merge this routine into your own programs. To use, GOSUB 49100 with X set to the maximum input length and X\$ set to a prompt or the empty string.

On exit, X\$ contains the input text, and X is the length of X\$. Input is restricted to those keys that actually print characters. The Delete key is the only editing key that works.

Problem solved? Not quite. When you try editing with this routine, you'll realize just how much we depend on the cursor keys and Insert. Delete works only at the end of the text, which can be awkward if the error is at the beginning of a string. It does have the advantage, though, of doing the job.

Something More Elegant

For more flexibility, though, we really need to include all the editing keys, while limiting their effect. To do this, the routine needs to be rewritten to recognize and act on these keys. For compactness and speed, we might as well do it in machine language.

```
100 REM RELOCATABLE INPUT
105 INPUT"RELOCATE TO";S: IF(S>6000 AND S<40400) OR (S>49151ANDS<52700)
THEN115
110 PRINT"INVALID!":GOTO105
115 X=S:PRINT"POKING";
120 READX$:IFX$=""THEN140
125 FORI=1TOLLEN(X$)STEP2 :Z$=MID$(X$, I,1): Y=ASC(Z$)-48+7*(Z$>"@")
130 Z$=MID$(X$,I+1,1): Y=16*Y+ASC(Z$)- 48+7*(Z$>"@")
135 POKEX,Y: X=X+1: Z=Z+Y: NEXT: PRINT".";: GOTO120
140 PRINT: PRINT"RELOCATING...": READ W: IFZ<>64286 THEN PRINT"DATA
ERROR": STOP
145 READX: IFX<0THEN END
150 P=PEEK(S+X)+256*PEEK(S+X+1)-W+S: POKES+X+1,P/256
155 POKES+X,P-PEEK(S+X+1)*256: GOTO145
160 DATA 1890034C07C2A9008D0CC2850520
FDAE209EADA0
```



```

165 DATA 02B1649902008810F8A8F004C9C990034C71A5A5
170 DATA D1A4D21865D39001C885AE84AF1865029001C8C0
175 DATA 08B0E520FDAE208BB085FB84FC207900A2FFC92C
180 DATA D006207300209EB78606A5D385FDA5D685FEA602
185 DATA A4FDAD860291F3C8CAD0FA20A6C0A000B103C920
190 DATA D00CE603D002E604C602D0F0F00EA40288B103C9
195 DATA 20D00588C602D0F5A002B9020091FB8810F8A919
200 DATA 85168D0CC260A602A000B103C9609004297FD002
205 DATA 293F91AEC8CAD0EEA5051865FD38A2FFE8E928B0
210 DATA FB692885D38A1865FE85D6AAB5D929030D880285
215 DATA D2BDF0EC85D1A90185CDA90085C685CC20E4FFAA
220 DATA F0FA85FF78A5CFF007A90185CD58D0F458A90085
225 DATA C685CC200DC1189099A5FFA605C90DD003686860
230 DATA A40288D0034CC2C1C986D009A00A207BC18810FA
235 DATA 60C98AD009A00A206EC18810FA60C985D00B38AD
240 DATA 0CC21001186E0CC260C914D006206EC1D00560C9
245 DATA 89D0138AA8C8B103889103C8C40290F5A9208891
250 DATA 0360C99DD0098A08F003C605CA2860C91DD008E8
255 DATA E402B002E60560C911D003840560C991D005A900
260 DATA 850560C993D00BC8A92088910398D0F8F0ECC994
265 DATA D01CA4028888C405900EB103C8910388C405F005
270 DATA 881890F2C8A920910360A207A5FFDDF8C1B005DD
275 DATA F1C1B005CAD0F1F01CBDFFC12506F0F4AE0CC210
280 DATA 0320A6C1A5FFA4059103C8C402B002E605602021
285 DATA 2B3A415BC121303A415B60DB01100810021004,
290 DATA 49152,4,9,112,163,264,286,295,308,320
295 DATA 326,334,455,460,470,477,482,-1

```

The above routine does that. Don't bother typing it in. It's listed here just for information. If you want to use this routine, it is on the flip side of this disk. It is called RELOCATE INPUT.P.

This routine is relocatable, so the starting address you give it is also the SYS address to activate it. If you relocate it to 49152, the command would be the following.:

```
SYS 49152,"initial text",X$,FI
```

The initial text is displayed and can be edited. The size of this text is also the size of the INPUT window and can't be 0 or more than 200 bytes in length.

The variable X\$ is where the result is placed, and FI is an optional filter value. Different values allow different keys to be accepted or ignored:

- 1-space accepted,
- 2-lowercase letters,
- 4-uppercase letters,
- 8-numbers and .,+,-,
- 16-all punctuation.

Two or more groups can be filtered by adding these values. For instance, 1+2+4 would allow letters and spaces, but not punctuation or numbers, to be entered. To accept all characters, leave off the ",FI" portion of the SYS or use a value of 31.

This routine accepts each editing key but in a limited way: cursor (up/down move to the front and end of the input line), Delete, Insert, CLR (which erases only the input line), and the functions keys f1-f4.

The f3 and f4 keys are forward and backward tab keys, and f1 is the insert toggle key, switching between insert and overwrite mode. The f2 is another form of delete, which deletes the character positioned under the cursor instead of to the left of it.

These two routines provide quick and simple data entry as well as more sophisticated input. What they don't provide is the opportunity for an inexperienced user to wreak havoc with your carefully crafted program. Enjoy!

PD Picks

Steve Vander Ark

Blue Thunder and Video Poker

Sometimes I blather on in this column about launching a torrent of bombs and blasting little beasties into flying debris. I suppose I do get a bit gushy about how numb I can make my fire button thumb as I careen around a screen full of alien scum, pouring missiles mercilessly into them and wallowing in the blazing...

Well, you know what I mean. I know there's more to life than draining a third pot of Maxwell House just so I can stay alert enough to wring the handle off the old joystick. There is more to life than joysticks. Sure there is! There's skill and finesse and strategy and all that kind of stuff. And I can do strategy. Really.

Anyhow, this month I thought I'd toss out a couple of interesting games that don't send you up against scads of nasty aliens. One game does require some good shooting, but you have to think about what you're shooting at and when to shoot if you want to succeed. The other is a nice sedate—and darned addicting—version of the electronic poker machines that are everywhere in Nevada. OK, so maybe it doesn't take much strategy to play poker with a poker machine, but as my wife points out, at least it's quiet.



Blue Thunder

GEnie file number: 13262.

Q-Link filename: Bluethunder. Uploaded by Paul110.

Blocks: 122.

I have to admit that soon after I started playing this game I decided that I didn't like it. That was a split second after I discovered that the little helicopter I was flying exploded when it hit a cloud. Come on! I like to buy into the story at least a little when I play a game, but I almost quit when I hit those cement clouds.

But I didn't quit, and I'm glad I didn't. The next thing I knew, a big blimp, of all things, was taking potshots at me and a couple of oversized guns joined in from some little islands that scrolled below me. All of a sudden, I was hooked. I'm really not sure when or how it happened, but I was hooked.

Maybe I got hooked when some weird object bounced up and down in front of my helicopter, blocking my way—until I pulverized it. Maybe it was finding a way to knock out that force field to reach the prisoners that I'd come to rescue. I don't know. But before long I really starting liking this game. When I managed to scoop up three or four prisoners before a swarm of hot-air balloons charged in to dole out my doom, I was elated. This was cool!

I know; you don't have to tell me. I said that these were nice, quiet strategy-type games, but *Blue Thunder* does require strategy. First, you have to beat the security arrangements at the POW camp, and then you have to figure some way of avoiding the strange missiles, bombs, and rockets that are fired at you. You'll also have to fend off jets, submarines, and those killer clouds.

Blue Thunder features some passable graphics and well-designed sound effects. I had no trouble handling the helicopter, even with my little IconTroller. (I left my good joystick at work.) There are no limits to the number of missiles and bombs at your disposal, although I found it more effective to maneuver around various threats rather than trying to blast them. See, I told you this wasn't just another blast-'em-up game! Unfortunately, there is no documentation for this game, so you'll have to figure it out on your own—but, hey, that's part of the fun!

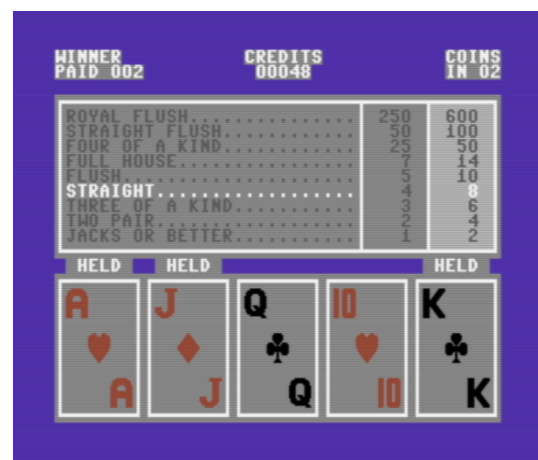
Video Poker by Bruce Linley

Q-Link: video poker. Uploaded by B Linley.

GENie file number: 13634.

Blocks: 52.

You know where I go brain dead the quickest on Q-Link? It happens when I play those slot machines in the Casino. You know how it is. You get into the routine, blindly pressing buttons, popping in chips, and pulling the lever over and over and over. I can blow a few thousand chips in a matter of minutes. Or is it hours? I can't tell. I go brain dead.



The screenshot shows the Video Poker game interface. At the top, it displays 'WINNER PAID 002', 'CREDITS 00048', and 'COINS IN 02'. Below this is a pay table with two columns of prizes and their corresponding credit values. The prizes listed are ROYAL FLUSH, STRAIGHT FLUSH, FOUR OF A KIND, FULL HOUSE, FLUSH, STRAIGHT, THREE OF A KIND, TWO PAIR, and JACKS OR BETTER. The values for the first column range from 250 to 1, and for the second column from 600 to 2. Below the pay table, there are five card slots, each labeled 'HELD' above it. The cards shown are Ace of Hearts (A♥), Jack of Diamonds (J♦), Queen of Clubs (Q♣), 10 of Hearts (10♥), and King of Clubs (K♣).

Prize	Credits	Coins
ROYAL FLUSH.....	250	600
STRAIGHT FLUSH.....	50	100
FOUR OF A KIND.....	25	50
FULL HOUSE.....	7	14
FLUSH.....	5	10
STRAIGHT.....	4	8
THREE OF A KIND.....	3	6
TWO PAIR.....	2	4
JACKS OR BETTER.....	1	2

HELD HELD HELD HELD HELD

A♥ J♦ Q♣ 10♥ K♣

Well, here's my chance to go brain dead on my own time. No monthly online charges. It's just me and *Video Poker* on my 128.

For anyone who's never seen one of these things in action, a video poker machine is a gambling device that's sort of like a slot machine. You drop coins into it and play a hand of poker. You have a chance of winning a pile of money—but not much of a chance. It's tougher than playing a real poker game since a pair has to involve jacks or better. I suppose that's why they call it a gamble.

It's also why it's better for people like me to play versions of video poker that involve coins made out of pixels rather than real money. As long as I'm going to gamble until my neurons melt, I might as well do it in style with this version of *Video Poker* by Bruce Linley. Running on the 128's 40-column screen, this game looks like the real thing. It has flashing lights, big easy-to-read card faces, nice sounds, and even a teaser blurb that scrolls across the screen between plays.

A quick read of the instruction file, easily accessible with a built-in viewer, will teach you all you need to know. Gameplay is realistic, and once you've memorized the keystrokes, the interface is simple. Particularly realistic is the fact that the game will invariably eat every dime you throw at it. There is the odd payoff or two, mostly a mere pittance, but make no mistake, this game will beat you.

But I don't care. The thrill of maybe, just maybe, putting together a flush or straight is worth it. Especially because I know that one of these days a royal flush is bound to appear, right? I mean, statistically speaking, it must be long overdue. So I'll just play a few more times.

Review

Robin Minnick

Reference Shelf

I've already told my editor at *COMPUTE* that it's going to be difficult to get 750 words out of this review. You can only use so many words to describe something simple. After all, how many does it take to explain what a telephone does? Of course, it takes many more to explain how it works. In any event, Don Radler of Andor House has come up with a nifty program to teach 64 users more about their computer. While it doesn't take long to describe what the program does, that doesn't make it less valuable.

Reference Shelf is precisely what its title states. This package is a reference book on a disk that consists of two programs. The first is *Computer Terms*, which is a compilation of 100 computer-related words and phrases with their definitions. The second is *Mini Cyc*, a miniature encyclopedia of 20 computer-related subjects.

Each program loads entirely into memory, eliminating slow disk accesses. This does, however, put a limitation on the amount of information available.

Computer Terms first provides you with an onscreen listing of all terms that it defines. You then request any definition by typing in that term. You can return to the list at any time by typing LIST. Requesting a term not on the list results in a polite SORRY, NOT IN GLOSSARY; PLEASE TRY AGAIN.

While Radler's method works fine, I found that there were many terms on the list that I didn't recognize at all and which I couldn't remember long enough to enter correctly. For this reason, I'd like to see a feature that would let me call up the desired term by highlighting it.

Mini Cyc, on the other hand, is set up a little along these suggested lines and has additional advantages. *Mini Cyc* can be approached directly or by typing CYC from within Computer Terms. (You can't reverse the procedure, however.) The full list of 20 subjects appears at the

top of the screen, with each topic assigned a number or letter. A single keystroke calls up a topic. A short explanation consisting of one or two paragraphs takes up one screen. If any other terms from *Mini Cyc* appear within the explanation, they are highlighted for further reference and appear at the bottom of the screen. You can call them up with a single keystroke as well. Press Return to go back to the main menu.

I much prefer the way this program is set up. It's easier on a lazy, forgetful, or easily confused user, such as I.

Of more importance is the material covered. Radler has come up with succinct explanations of topics in *Mini Cyc* as well as a fair compendium of words in Computer Terms. *Mini Cyc's* topics include BASIC and machine language, desktop publishing, user groups, and computer care. For example, under desktop publishing you find the following, "the name of the use of a computer and printer to do finished printing for distribution." It then goes on to list some of the programs available for Commodore users. In this explanation, the term graphics is highlighted for cross reference purposes.

Computer Terms includes terms such as ADSR, compiler, download, half duplex, hi-res, immediate mode, POKE, pulse, REU, sector, touch tablet, and wildcard. Definitions are about two lines long, and some refer to other terms on the list. For instance, sector is defined as "wedge-shaped portions of concentric track on disk," and pulse as "width of square wave. See that description."

What use is this little disk? Actually, it's a handy way of getting a quick introduction to some of the jargon you need to find your way around a 64. It is fast and easy to use and is kept simple by the use of self-explanatory menus and keystrokes. A newcomer to the 64 or even an old hand who doesn't know it all yet would find this program a clever tool. It would be especially welcome if it were included as a software bundle for new 64s. Everyone can use a good *Reference Shelf*.

Andor House
Don Radler
3907 SE Second Ave.
Cape Coral, FL 33904
\$4.95

Making a Buck with Your Commodore

Don Radler

Did you ever think of using your Commodore to make a buck or two? Ever wonder what other 64 and 128 users have done with theirs? You may have given it some thought, only to drift back to your favorite role-playing game or soar high and away with your most challenging flight simulation.

But wouldn't it be great to let your computer system help pay for itself? And wouldn't it be fun to buy your next piece of software or hardware out of your Commodore's earnings? Well, read on. That's what this article is all about.

Over the years, I've heard or read of many interesting ways in which Commodore owners use their machines. In most cases, people do what they do for their own convenience or for fun, but sometimes, they turn their efforts into cash. Earning cash with your computer is not beyond the reach of any Commodore owner, including you. Let's take a look at the potential.

Word Processing

Word processing is one of the most common uses of all computers, which is why *SpeedScript* is the most popular program *Gazette* has ever published. Many Commodore owners use word processors such as *SpeedScript* for all their correspondence, and some turn out elegant newsletters to keep family and friends in touch with their activities.

Writers sell their output as often as they can, but nonwriters can make a buck with a word processor, too. If you live near a college campus, you can type up term papers for students or research papers for faculty members. Do you have a modem and an account with one of the online services such as QuantumLink? You might help people research the papers they write: Using an online encyclopedia, you can accumulate information and references more quickly and easily than any client ever could with a trip to the library. Just posting a notice on a college or university bulletin board might well develop some business for you.

Other possible ways of earning money with a word processor include producing resumes for job applicants and printing menu inserts for restaurant specials. Products of this kind turned out with a word processor can look better than anything banged out on a typewriter or done by hand. And once they're on disk, keeping them updated for a client is a snap. One tip: Don't use a whole bunch of fonts on one page just because your word processor and printer can produce them; clean and simple is best for almost any document.

Desktop Publishing

With a program such as *The Newsroom*, *The Print Shop*, *geoPublish*, or *PaperClip Publisher*, you can make a newsletter, resume, or restaurant menu look even better. Imagine a scenario that goes something like this: You eat in a local restaurant and notice that its menu is less attractive than it could be. You know that you could create a better one. You go home to your computer and design a more attractive menu.

Later, you return with an appealing version of the restaurant's own menu, illustrated with clip art or original art. You show it to the owner and suggest that you provide copies for all the menus, making changes anytime the menu does—daily if need be. You negotiate a price, and there you are with a regular customer.

You can also produce personalized greeting cards, posters, calendars, banners, and so on. Two tips: Leave breathing room around any piece of art, and make all figures face the center of the page. An animal facing right should be placed at the left side of the page; one facing left should sit on the right side. (Figures with no left or right orientation can go at either side, naturally, or can be centered.)

Work that requires multiple copies can be produced on your printer and then reproduced with a photocopier or printing press. Be aware that the reproduction process often increases the contrast and that can make copies look better than originals.

All it takes to announce the availability of your services is a small classified ad in your local newspaper or shopper. You might want to design a flier and post it on area bulletin boards. (If you're good at layout, the print shop that makes copies of your work for you just might call upon you to do other layouts for them or to crank out camera-ready copy with your computer-printer setup.)

Desktop publishing programs and paint programs such as *Doodle!* and *Blazing Paddles* can be used to create cartoons. I have yet to see a computer-generated cartoon in any magazine. I once sold some made with *The Newsroom* to *RUN* magazine, but it folded before my cartoons were printed. I still hope to see computer cartoons in print; maybe one of yours will be the first. (Editor's note: Be sure to look for Mr. Radler's cartoons elsewhere on this disk.)

Databases

Many computer users maintain their household inventories, Christmas card lists, and personal address and telephone lists on disk. A few entrepreneurs have turned this into a business, maintaining records for local stores, clubs, and other organizations.

Another potentially salable database activity is the production of mailing lists and labels. There are still many small businesses and other organizations that operate without a computer. This fact can create all sorts of opportunities for entrepreneurial Commodore owners. Your product might not compete with laser-printed full-color work from a Mac, Amiga, or IBM, but it will be a noticeable improvement over a typewritten list. State-of-the-art production just isn't required for a list of business customers or a roster of club members.

Spreadsheets

Spreadsheets such as *Gazette's SpeedCalc* and *GemCalc* are also used by many Commodore owners for such personal records as their household budgets and household inventories. Owners of small businesses have used spreadsheets on their Commodores to crunch the numbers that are important to them.

You might use a spreadsheet in a similar way for small businesses in your area, many of which still do paper-and-pencil record keeping and computation. Even if you don't have the bookkeeping knowledge to calculate taxes for a business client, you might maintain a regular record of cash flow that could be turned over to an accountant at tax time. This could save your client real money, even after your fee is paid.

If you're qualified to prepare taxes for others, there are several tax preparation programs available, such as *Tax Master* by Master Software. This and other tax preparation programs are updated each year, with the latest version purchasable at a discount.

School Uses

There are thousands of educational programs for the Commodore, at every academic level, and some schools still have 64s and 128s. Quite often, the machines are underutilized because many teachers are not computer experts. If this is the case in a school near you, you might become a paid consultant or even a part-time instructor. (It wouldn't take too much additional hardware or software to network several Commodores within a classroom, creating a whole new and exciting learning environment.)

Equipment Control

Commodore owners have also used their machines to activate and turn off electrical appliances and to control home energy use. Many people have written their own software or used programs such as *X-10 Powerhouse*.

Systems that can be controlled include heating, cooling, and lighting—even lawn sprinkling. This doesn't earn any money, but it can save you some by avoiding the use of energy at times of peak demand when rates are highest. It can also enhance comfort and convenience by turning on your house's air conditioning as you're driving home from work or starting your electric percolator for a fresh pot of coffee that's ready when you walk into the kitchen in the morning.

You can also use your computer to turn lights and appliances on and off when you're not at home, fooling any would-be burglars. Commercial installations such as gas plants also have been controlled by a 64 or 128, with no operator on-site. And Commodores have been used to control robots; I'm not aware of any commercial application of this, but you might think of one.

If you'd like to get the feel of controlling equipment with your Commodore, try Keith Groce's *AlarmCalc* program in the April 1991 *Gazette*. It shows how starting and stopping times for up to five events can be monitored. Also look for Larry Cotton's articles on turning a joystick port into a miniature user port ("Beginner BASIC," July and August 1992) and on controlling the user port itself (June and July 1993).

Computer Consulting

With most computer buyers today opting for IBM compatibles, Macs, or Amigas, and with Commodore making no effort to sell its 8-bit line in this country, sales of the 64 are slower than they used to be. But there still are sales. Many of these buyers need help setting up their systems and advice on how to use them and on what software to buy. If you were to offer such a service, your nearest Commodore dealer might be more than happy to let you place a flier and/or business card in the store. The owner might even refer new customers to you for instruction and help.

Video Titles

Using software such as *Video Title Shop* by Datasoft or *Home Video Producer* by Epyx, some Commodore owners create title screens for their own home videos. Others have turned this into a business, using their Commodores to create computer-generated titles for other video makers. Nothing serves as a better envelope for a video production than opening and closing titles, especially if they're attractive, colorful, and custom-made to be fully appropriate to the video's subject matter.

Sound and Light Shows

Computer monitors have often been used as scrolling message centers at meetings and conventions. There are many such programs available, including *Electronic Billboard*, which is a bonus on the March 1993 *Gazette Disk*. Another one appeared in the June 1990 issue of *Gazette*.

The computer's output can be recorded on a VCR, so you could create a fascinating sound and light show this way. Setting up a display of this kind for a company booth at a trade show could be interesting, as well as lucrative.

Games

Several years ago, I heard of a Commodore owner who kept his computer in his garage and charged local kids two bits a pop to play arcade games on it. (That was before half the kids in America had their own Nintendo machines.) In a somewhat similar vein, if you have any proud chess players among your acquaintances, you might let them take on your computer with a buck or two for the winner. Most players can't handle my *Colossus Chess IV* at the default level, and none I know can beat it in tournament mode with the draw score set at the toughest level. But then, neither could many chess masters! (Speaking of games, I've also heard of helping slow learners improve their eye-hand coordination just by having them play computer games, a more serious use of Commodore's strength as a game machine.)

Programming

To me, programming is the most intriguing use of a computer and the one that stretches the mind to its greatest extent. Mastering BASIC 2.0, the language built into the 64, or BASIC 7.0, the language of the 128, is not that difficult. Both programming languages are similar to English. Many people also are proficient in machine language, which is more difficult to master. With these skills, you can write and sell programs.

Of course, producing a salable program isn't easy. The Commodore market isn't exactly screaming for new material, but there is still a buck to be made in programming for the Commodore. You could try sending some of your work to *Gazette*. It still buys half a dozen or more programs each month. Your submissions will get a fair reading, and your best stuff has a shot at being published. Remember to write an accompanying article in *Gazette's* style, explaining right up front what your program does and how to use it. Also, make sure your program is thoroughly debugged. If it won't run right when you submit it or if the submissions reviewer can't even tell what it's supposed to do, it has little chance of being considered.

Also, in recent installments of "64/128 View," *Gazette* editor Tom Netsel has graciously mentioned some real or potential competitors, showing his support for all signs of life in the 64/128 world. These publications and newsletters often pay for articles and programs.

In the December 1992 *Gazette*, Lisa Hayes edited a buyer's guide to Commodore software, hardware, and services. This is a good review of sources for any of the software mentioned in this article. And if you're looking for a market for your own programs, you might want to check out that listing. Possibly most promising as potential markets for your programs are *Cee-64 Alive!*, Creative Pixels Limited, *Loadstar*, and Mad Man Software. *Loadstar* editors prefer BASIC over machine language, and they dote on custom fonts. Mad Man offers a kit for independent authors that explains how the company can help you get your work to market. (Editor's note: Look for an updated Commodore Buyer's Guide in an upcoming *Gazette*.)

Shareware

You could try offering some of your programs as shareware. This is a form of publication in which people try the program and then pay a fee for it only if they like it and find it useful.

There are programmers who feel that most users are honorable, but others believe that nine out of ten users never pay the fee. I know of no way in which this can be tested scientifically. If you want to try this route, most shareware is distributed through electronic bulletin boards and commercial online services, such as Q-Link.

The shareware fee typically ranges from \$5 to \$25, depending on the size and sophistication of the program. *Gazette's* reader surveys reveal that only a minority of Commodore owners subscribe to any online service, so this may be a distribution method of limited value. You could try distributing through user groups, but mailing disks to each group could be expensive and not necessarily productive.

Do Your Thing

If you decide to put your Commodore to work, try any of the things I've mentioned. Focus on doing what you truly enjoy doing, the things that you do best, and they'll be the ones that are successful for you.

Before you switch from hacking around to more serious pursuits, become fully conversant with the hardware and software you're planning to use. That way, your computer system will be an extension of your own creativity, rather than an obstacle to it, and the product will show the difference. On the way to producing that product, you'll have fun, and that will show, too.

The days of the 64 or 128 bestseller that makes its author rich may be long gone, but there's plenty of life in our 8-bit machines. And where there's life, there are ways for you to earn a few bucks.

Programs

Ice Mountain

Maurice Yanney



Valuable pieces of metal are buried inside a mountain of ice. You have to retrieve them with your remote-controlled helicopter. The object of this arcade-style game for the 64 is to shoot through the mountain range, clearing a path to the metal. The helicopter then has to land on the metal to retrieve it. Once the required number of metal pieces have been collected, the helicopter is transported to a mountain where the pace is quicker and the metal more valuable.

Gathering the metal won't be easy. A bird roams the mountains and doesn't appreciate toy helicopters destroying its habitat. The bird is attracted to bullet fire and can trace bullets to their origin, homing in for the kill. The bird is immune to your bullet fire, so shooting it will only serve to cause your helicopter to crash.

The metal bars are protected by missiles. They too can home in on bullet fire and are launched on a course to intercept your helicopter.

In addition to the bird and missiles, icicles fall from above. They are also capable of destroying your helicopter.

The only portion of the mountain on which you can safely land is the very bottom. This is the row directly above the one containing the metal bars.

You must gather enough metal to advance to the next level before your helicopter runs out of fuel. When you use up five helicopters, the game is over. An extra helicopter is awarded for each 20,000 points. You earn 10 points for destroying a piece of the mountain. You get 100 points for hitting an icicle and 1000 points for successfully landing on a metal bar.

Movement is controlled by a joystick (in either port). The keyboard can be used as well. The I, J, K, and M keys can be used to move up, left, right, and down respectively. Use the joystick fire button (or space bar) to fire bullets; holding it down results in continuous fire.

When moving one step at a time (as opposed to holding the joystick in a certain direction or depressing a key), the helicopter doesn't change direction. So, if you wish to maintain fire in one direction while moving in an opposite direction, simply move the helicopter slowly.

If you want to quit, press the Q key. You will then get a prompt asking whether you really want to quit playing the game or just want to restart the game.

Maurice Vanney is a frequent Gazette contributor. He lives in Lebanon, Pennsylvania.

Starship Battles (for the 128)

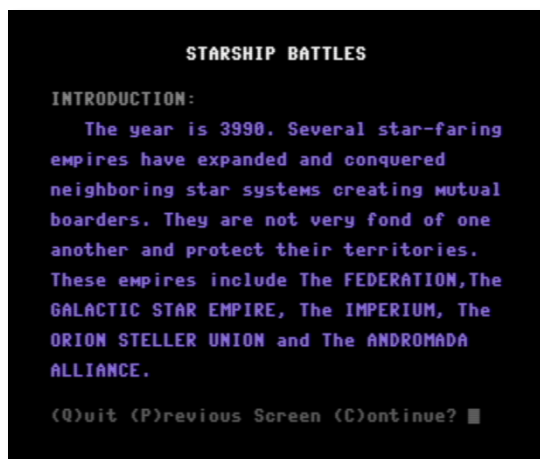
John LeDoux - Micro Designs

Introduction

Starship Battles is a space adventure for the 128. The year is 3990. Several starfaring empires have expanded and conquered neighboring star systems, creating mutual borders. They are not very fond of one another and protect their own territories. These empires include The Federation, The Galactic Star Empire, The Imperium, The Orion Steller Union and The Andromeda Alliance. Earth's solar system could be allied with any one of these empires.

Because of the vastness of space, a full-scale war among these empires would be near impossible. This simulation reflects small regional conflicts that occur between patrolling starships.





Description

Starship Battles is a simulation of various conflicts that might occur in space among the above empires. The top of the screen displays the starships and the space background. The bottom portion is your ships' system information.

The game is played in rounds of combat, with two phases per round. The first is the Command phase where you will transfer your ships' power to activate the various systems. The second is the Execution phase. Here you

will observe the two starships executing their orders from the Command phase. The computer will graphically display the ships while they are firing their beams, missiles, and torpedoes. Should one of the weapons find its target, you will observe explosions and sound effects.

As each starship accumulates damage, its power and randomly selected ship systems' effectiveness may be reduced. The starship with zero Power Units remaining after any Execution phase will explode! Alert captains should attempt to retreat into deep space (exit off the screen) while they still have a few Power Units remaining.

Summary of Play

After the title screen, type L and hit the Return key to load the game. The Option Menu will then be displayed as shown below.

OPTION MENU

1. Starship Selection.
2. Install a Cloaking Device.
3. Change Your Ship's Color.
4. Adjust Difficulty Level.
5. Select Space Background.
6. Select Number of Combat Rounds.
7. Start Game.

SELECT ONE OR MORE OPTIONS ...?

You may select as many or as few of the options (1-7) as you like in order to customize your game. After you have made your selections and have chosen 7 to start the game, you will enter the Command phase. The screen will be divided into two parts. The top will display the two starships in space, and the bottom will show your control panel with the power, shield, armor, ECM, drive, beams, Missile, and torpedo displays. The number after the displays represents the total number of units that ship has to use.

The following is an explanation of each.

POWER - Source of energy to activate all systems.

DRIVE - Impulse drive engines to move the ship.

SHIELD - Energy force field surrounding the ship for protection.

ARMOR - Layers of armor plating attached to hull.

ECM - Electronic countermeasure jamming device to deflect enemies weapons.

BEAMS - Particle beam weapons.

MSSL - Auto detonating missile banks.

TORP - Energy torpedoes.

COMMAND - Here you will follow the prompts to activate your ships' systems. Most of the systems will require a power usage, which will reduce your overall Power Units as the systems are activated.

Prompt 1

ATTEMPT TO SCAN ENEMY SHIP (Y/N) ?

Here you have the option of scanning the enemy ship for damage and info. Your success rate is about 50 percent, and the cost is one Power Unit.

Prompt 2

ACTIVATE CLOAKING DEVICE (Y/N) ?

This will appear if your ship had a cloaking device installed during the Option Menu. The cost is three Power Units.

Prompt 3

ENTER SHIP BEARING ?

This prompt is asking you to input the heading for your ship. A HUD display (Heads Up Display) at the lower right section of the screen will appear with numbers from 1-8 (1=0 degrees, 2=45 degrees, 3=90 degrees, and so on). You may elect to enter a number such as 1.5 (60 degrees) or 7.3 (328 degrees). The computer will calculate the degree of arc from your bearing input. There is no Power Unit cost.

Prompt 4

POWER TO DRIVE FOR DISTANCE ?

Here you would enter a number to power your drive engines. The drive number is the maximum number you may enter. The cost is one Power Unit per each drive number.

Prompt 5

POWER TO RAISE SHIELDS ?

At this prompt, you will enter the power level your shields will be raised to. The higher the number the less damage the enemy ships' weapons will do. The cost is one Power Unit per shield level.

Prompt 6

POWER TO ENGAGE ECM DEVICE ?

ECM (Electronic CounterMeasures) is a device which reduces the chance of an enemy beam weapon hit. The cost is one Power Unit per ECM.

Prompt 7

POWER TO BEAM WEAPONS ?

The particle beam is your most accurate weapon. The closer the enemy ship the higher the chance of a hit and the more damage the beam will do. The Power Unit cost is one per beam weapons activated.

Prompt 8

LAUNCHING MISSILES (Y/N) ?

If your ship has missiles, this prompt will be activated. Each missile bank contains three warheads that explode at a predetermined area of space chosen by you. An X/Y grid at the top and right of the screen will be displayed. You will then input two numbers separated by a comma. Top number first (X), then the right side number (Y). The cost is one Power Unit.

Prompt 9

LAUNCHING TORPEDOES (Y/N) ?

If your ship has torpedoes, this prompt will appear. These are the most powerful weapons available, but their accuracy is poor. A HUD display will appear again (as during the Bearing prompt). Choose the direction you would like to aim the torpedo.

Once you have used all your Power Units for a particular round or you have finished with the Torpedo prompt, the enemy ship will select its system power-ups. Then the Execution phase will begin. After all weapons have been fired and hits have been made (if any), the computer will determine if any of the starships are at zero or less power units. If so, then one or both of the ships will explode. Otherwise, you will go to the next round of combat (Command and Execution phases) until a victor is decided or any ship escapes off the screen.

Cloak or not to Cloak?

A word on the cloaking device. In the Option Menu, you are given an option to install a cloaking device on either or both ships. If the enemy ship is cloaked, it cannot be seen but can be heard. If you look really close, you might be able to see its "shadow" cross over the stars. If your ship is cloaked, the color of your ship will turn a dark gray, and the enemy ship will not know where you are.

Captains, man your starships!!!

John LeDoux lives in Gainesville, Virginia.

Statistics

Earl Woodman

In the world of math and science, knowledge of statistics is fundamental. Statistics are used in a number of academic disciplines, but they can also be useful to the average person.

Unfortunately, the mathematical computations that are necessary turn many people away.

This program puts a number of sophisticated statistical functions at your disposal and lets the 64 handle the complicated math.

Statistics, found on the flip side of this disk, is written in BASIC. Load and run it to bring up the main menu. You will be presented with several choices.

The first choice is the statistical functions portion. Type 1 and press Return to begin. You will be prompted to enter data at the prompts. You can enter up to 200 numbers, but you can change the program to allow for more items if you need them. (Change the DIM statement in line 40 so that when you've entered all the data you can type -1 and press Return to finish entering.) The computer will then sort the data in numerical order and display the results on the screen in four columns. If the data is out of order, the sorting routine may take a long time to complete.

After you've entered the data, *Statistics* will calculate the mean, the median, the standard deviation, the deviance, the population standard deviation, the population deviance, and the range.

The mean is simple a straightforward average. All the numbers are added, and this result is divided by the number of numbers entered.

The median is the middle-most value if there are an odd number of data items. If there are an even number of items, then the median is an average of the middle two data items.

The variance is the ratio of the sum of the square of the differences between the mean and the individual data items to the number of items minus one. This may be a somewhat difficult concept. Averages, being a little more familiar, are therefore easier to understand. Variance is more like a range. It's the study of how much each point varies from the mean.

The standard deviation is the square root of the variance. Often the average and standard deviation will be relatively close.

The population variance is the same as variance except that the ratio is not to the number of items minus one, but exactly to the number of items. As before, population standard deviation is just the square root of population variance.

From the main menu, press 2 to select linear regression. This is the study of two variables which are related. Linear regression means that the two variables vary directly with each other. In other words, the plot of such a relationship would be a straight line. You are asked to enter a value for x and then one for y. This is repeated until you type -1 as the x entry. All the x entries should be the same variable, and all the y values should be the other variable.

For example, if you were looking for a relationship between hours of cloud in a day and hours of steady rain, you might enter 5 for x and then 3 for y. Another reading might be 4 for x and 1 for y. Up to 200 of these sets can be entered, at which point the computer sorts the data numerically in ascending order of x.

The program will then calculate a linear equation of the form $y = m \cdot x + b$ where b is the value of y when x is 0 and m is the slope of the "line of best fit" of the graph. Most likely the graph won't be a straight line. The line of best fit is the line drawn on the graph that would most likely be the relationship that exists.

The closeness of the data to appearing as a line is called the correlation coefficient. This is calculated and displayed on the screen. This number will be between -1 and +1. The closer the number is to -1 or +1 then the better the line fits and the greater the likelihood that the data is linear.

As a bonus, the computer prompts you for an arbitrary value of x, and it will then calculate the y value. (This feature works well if you use an x value that wasn't in your data set.)

Earl Woodman lives in Broad Cove, Trinity Bay, near Dildo Newfoundland, Canada.

DirMaster

Kent L. Smotherman

Note: Neither this program nor its documentation have been edited or altered by Gazette. It is mentioned in "GEOS," and is on this disk simply as a service to our readers. Since DirMaster is a GEOS program, you will have to load and run GEOS to copy it from the flip side of this disk to a GEOS work disk.

Welcome to *DirMaster*, the featured packed GEOS directory management application! I've tried to make everything as intuitive as possible, for this doc file should answer any lingering questions you might have.

General Concepts

DirMaster provides all the directory manipulation features missing from all the desktops available for GEOS. Primarily these features deal with the physical arrangement of the files within the directory. *DirMaster* allows you to easily arrange the files within the directory to your specifications, including manual arrangement and several automatic arrangements related to sorting the directory.

Arrangement of files is always accomplished by first selecting the files you want to perform a *DirMaster* operation on. Files may be selected individually by simply point-and-click (as many as you like) or by the GLOBALS menu item which allows selection/deselection/toggle for all files. Once a group of files has been selected you can then move them to any location within the directory by clicking on one of the right-pointing arrows along the left edge of the file display window. All selected files will be moved in their current order to the indicated location. If you choose one of the menu items under SORT then the indicated operation is performed on the selected files. At any time you may use the up/down and page up/down arrows to examine the rest of the directory. When the directory is arranged in the manner you want, just click on the SAVE menu item to save the directory on your disk.

That's all there is to using *DirMaster*! Following is a complete description of each menu item selection:

geos: This selection provides access to the FREEDOMware notice as well as the first 12 desk accessories on the current drive/disk. Note that when you use the drive and disk selections this menu will update automatically to indicate the first 12 DAs on that disk/drive!

disk: Reads the directory of the disk in the current drive. If you want to change disks then just do so prior to making this selection.

drive: Reads the directory of the disk in the numerically next drive. Automatically skips drives that don't have disks inserted. Supports devices 8-11.

sort: The real workhorse of *DirMaster*, this menu expands to the following selections:

- alpha/A-Z: Sort selected files alphabetically. Upper and lower case are considered the same.
- alpha/Z-A: Sort selected files in reverse alphabetical sequence.
- file type: Sort selected files by GEOS file type.
- date/old-new: Sort selected files by date, oldest to newest.
- date/new-old: Sort selected files by date, newest to oldest.

global: Expands to the following selections:

- toggle: toggle the selection status of all files.
- deselect: deselect all files.
- select: select all files.
- compact: Removes all unused/deleted file entries. Unused/deleted file entries show up in the file display as blank lines.

display: Expands to the following selections:

- names only: Change the file display to filenames only.
- +types: Display filenames+filetypes.
- +types+dates: Display filenames+filetypes+dates.

save: Write directory back to disk.

quit: Exit to desktop.

Miscellaneous Notes

- Any movement/sort operation automatically performs a compact operation.
 - If you ever make a mistake, don't sweat it! Nothing is permanent until you select sort!
 - *DirMaster* supports and has been tested on the following equipment: 1541, 1581, CMD RAMDrive emulating 1541-1581-native mode. Maximum files is 480.
 - When sorting/moving a large number of files (like over 100) expect a short delay of from 2-5 seconds to perform the operation.
 - All sort/move operations automatically perform a global deselect upon completion.
-

Seek CHR\$ 128

Edward Sullivan

Are you tired of reaching out for a reference manual to find the CHR\$ value for a special graphic character? Are you tired of squinting at dim keyboard images trying to distinguish related graphics? If so, your problems are over. *Seek-CHR 128* will eliminate the irritation of using graphics.

It does this by grouping graphics into categories and printing them as enlarged characters in 8 x 8 grids, letting you determine the pixel patterns, the code value, and the letter key where the graphic is located. The grids are color-coded to indicate in which print mode the graphic is available.

Code other than graphics can be called from the keyboard; however, only graphics are displayed as grids. Since *Seek-CHR* is transparent to BASIC, you can enter it at anytime to get a CHR\$ value or the location of a graphic key.

The utility is written entirely in machine language with versions for 40- and 80-column screens. Use *Seek-CHR 40* or *Seek-CHR 80* on the flip side of this disk. You can DLOAD and run either version as you would a BASIC program.

The program will change the value of the start-of-BASIC pointer at \$2E (46) to protect itself from being overwritten by your BASIC programming. The program will display the function

keys showing the SYS calls for using Seek-CHR. Make certain that you type NEW at this time so that the rest of the computer pointers will be reset. If you fail to type NEW, the program won't work properly.

Press f1 to show a menu with options 0-9. Select an option number, and that screen will display up to eight graphic characters that are similar in design. Below each one will be the decimal value, the hex value, and the key where the graphic is found on the keyboard. The lower two values are the screen codes for the graphic CHR\$, if you are poking directly to the screen. Press Return to exit all the displays.

Option 9 is used to display the nongraphic codes. A prompt will alert you to using the Esc key to view those code values not accessible from the keyboard such as Underline, Bell, Flash, and so on. Option 9 can also be called by pressing f3.

Many CHR\$ have more than one value. Seek-CHR returns the code value that is returned by the Kernal GETIN routine (\$FFE4). Be aware that the screen edit keys will still be active. Press cursor up, and the data will actually print one line up, down, right, or left. Clr will clear the screen and print its code; Home prints at line 0, column 0. Selecting a color key will change the text color. Press f5 to bring up a chart of all 16 colors, with their code values and color command values.

When you've finished programming, DSAVE your program in the normal manner. Although the start-of-BASIC pointer has been changed, when you DLOAD your program later on, it will load at \$1C01 as long as you do not BLOAD the file. To play it safe, you could DSAVE the program again, without Seek-CHR in place.

Edward B. Sullivan retired after 30 years as a TV news cameraman and quickly learned that while fishing for lunker trout in Missouri's Lake Taneycomo helped keep his physical well-being, it didn't do much for his mind. He went into computer programming to take care of the mental stimulation that he needed. He progressed from a TRS-80 to a 64 and then to a 128, which, in his opinion, is the greatest home computer ever designed. Mr. Sullivan lives in Branson, Missouri.

Video Poker

Bruce Linley

Video Poker is a public domain program that is discussed in Steve Vander Ark's column "PD Picks." It does not have separate documentation.

You can read about its features in Steve's article in the Column section of this Gazette Disk. The program itself is on the flip side of this disk.

We include PD programs as a convenience for our readers and to showcase some of the excellent work that has been done—and continues to be done—in this field. PD programs found here are presented exactly as we found them. They have not been altered or edited by us in any manner.

Whenever possible, Gazette contacts the author and offers an honorarium for using his or her program on this disk.

Blue Thunder

Val Franco

Blue Thunder is a public domain program that is described in the “PD Picks” column on this disk.

This graphic helicopter adventure game does not have separate documentation, but you can read about its features in Steve Vander Ark's column.

“PD Picks” is an attempt to bring more attention and credit to the many fine programs that are in the public domain. If you know of a PD program that you feel is above average, why not send a copy of it on disk to Mr. Vander Ark in care of:

COMPUTE's Gazette
324 West Wendover Avenue, Suite 200
Greensboro, North Carolina 27408.

He may use it in his column.

Be sure to include the author's name and address if you have it available.

(The program is uncredited, but Gamebase64 identifies Val Franco as the programmer. —MS)

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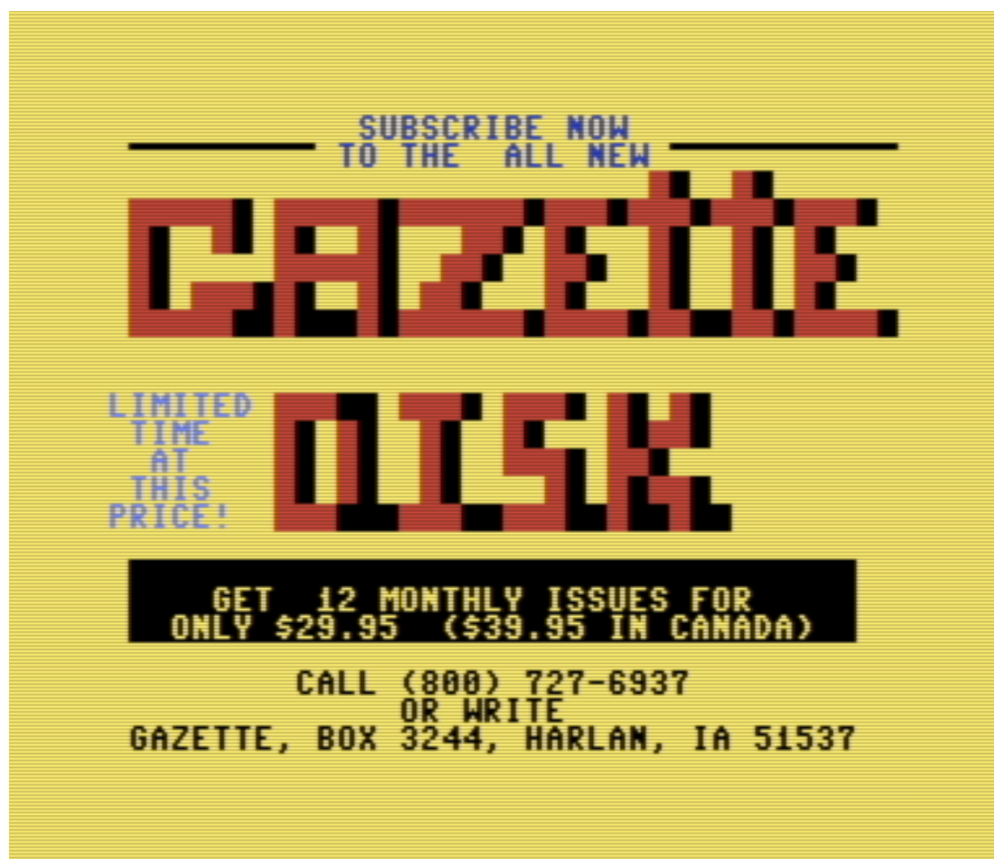
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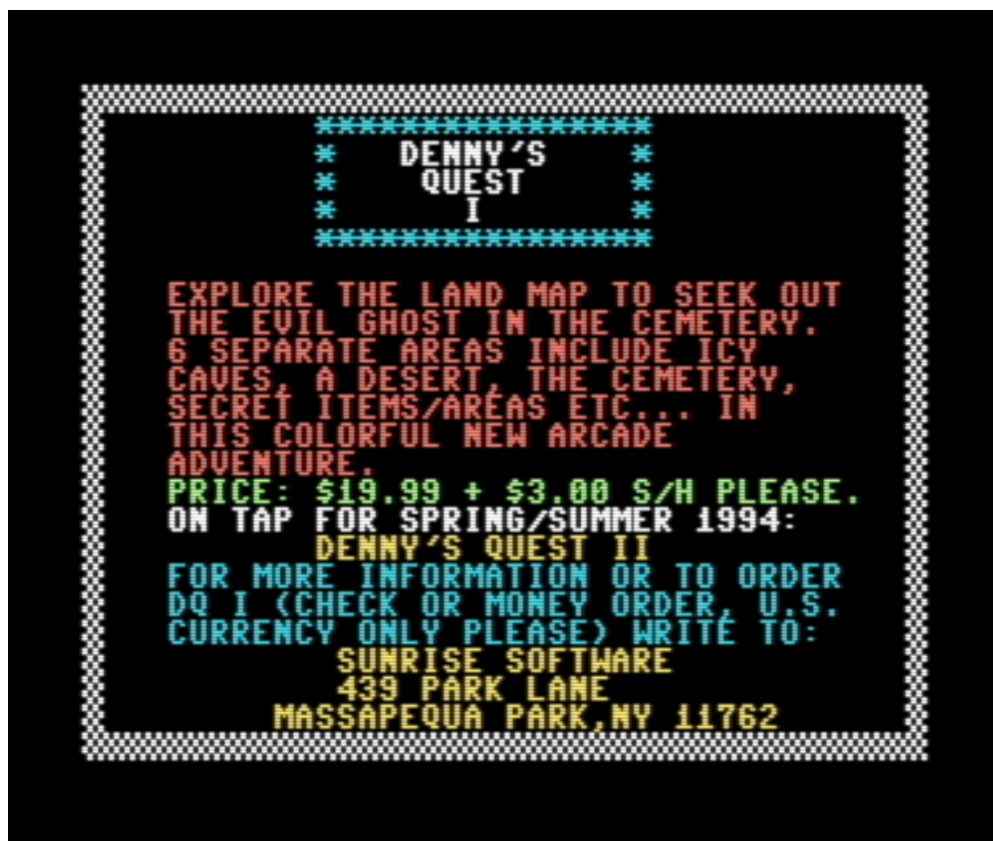
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